

CLAIM(S)

What is claimed is:

1. A process for multi-layer coating of substrates which comprises the
5 steps of applying at least two coating layers and curing of the applied
coatings;
 wherein at least one of the coating layers is formed from a coating
composition comprising a binder system of resin solids wherein the resin
has free-radically polymerizable olefinic double bonds and hydrolysable
10 alkoxysilane groups, wherein the resin solids content of the coating
composition has an equivalent weight of C=C double bonds of 200 - 2000
and has a silicon content of 1 - 10 wt-%, wherein the silicon is bound in
alkoxysilane groups and wherein the step of curing of the at least one
coating layer comprises exposure to thermal energy thereby polymerizing
15 the C=C double bonds via free radical polymerization and exposure to
moisture thereby forming siloxane bridges from the alkoxysilane groups.
2. A process according to claim 1, wherein the coating composition
comprising a binder system of resin solids having free-radically
20 polymerizable olefinic double bonds and hydrolysable alkoxysilane groups
is applied onto a pigmented base coat layer and cured to form a clear coat
layer.
3. A process according to claim 1, wherein the coating composition
25 comprising a binder system of resin solids having free-radically
polymerizable olefinic double bonds and hydrolysable alkoxysilane groups
and being pigmented is applied as a one-layer top coat composition onto a
substrate selected from the group consisting of a primer layer, a surfacer
layer and a primer/surfacer layer and cured to form a pigmented one-layer
30 top coat layer.

4. A process according to claim 1, wherein the coating composition with a binder system of resin solids having free-radically polymerizable olefinic double bonds and hydrolysable alkoxysilane groups is applied as a transparent sealing coat onto a multi-layer coating to form an outer
5 transparent sealing layer.

5. A process according to claim 1, wherein the resin solids content of the coating composition comprises resins having free-radically polymerizable olefinic double bonds and hydrolysable alkoxysilane groups, an equivalent
10 weight of C=C double bonds of 300 - 1500, and a silicon content of 1 - 7 wt-% wherein the silicon is bound in alkoxysilane groups.

6. A process according to claim 1, wherein the alkoxysilane groups comprise trialkoxysilane groups.
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7. A process according to claim 1, wherein the binder system with free-radically polymerizable olefinic double bonds and with hydrolysable alkoxysilane groups additionally comprises hydroxyl groups.

20 8. A process according to claim 1, wherein the binder system with free-radically polymerizable olefinic double bonds and with hydrolysable alkoxysilane groups comprises polyurethanes with (meth)acryloyl groups and hydrolysable alkoxysilane groups.

25 9. A process according to claim 1, wherein the thermal energy is applied by a method selected from the group consisting of action of infrared radiation, action of near-infrared radiation, action of convection heat and combinations thereof.

30 10. A process according to claim 1, which comprises a process for the multi-layer coating of vehicles and vehicle parts.